LUPINE
LIGHTING SYSTEMS

www.lupine.de

Piko Head Unit
Piko 3
Piko X
Piko U3

OWNERS MANUAL

Piko

General:

The light and charger are ready for use when delivered. All you have to do is charge the battery before using the product. ➔ See charger section.

Safety instructions:

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Warning! Avoid looking directly into the light emitted by the light or shining the light into your own eyes or the eyes of another person. If the light accidentally shines into your eyes, close your eyes and move your head out of the light beam. Do not use any strongly focusing optical device to look at the light beam.

In cases where the light is used in a public or commercial setting, users should be provided with training concerning the safety measures for laser light.

Carry a spare light with you at all times, as the product can potentially fail unexpectedly at any time.

Heat generation:

Our Piko is not a flashlight. The housing may heat up; so make sure that you always keep the light at a safe distance to any combustible or flammable materials. Could cause fire or death!
However, quiescent operation (without cooling the light housing via airflow or the like) is possible at any time and will not damage the product.
Important! When the light is being used in a stationary state, the light will be dimmed after a few minutes to reduce the light's temperature. Continuous operation at 8 watts is only possible with air flowing over the housing!

Water resistance:

All Piko components are waterproof and can of course be used under extremely severe conditions. However, the Piko light is NOT a diving lamp and is NOT suitable for use under water.

Piko 3 Helmet Light:

No tools are required for mounting this lamp. The helmet mount is already mounted to the lighthead. You can attach this helmet light to almost any kind of helmet with ventilation openings.

Insert one part of the velcro strap into one of the ventilation openings available on your helmet. Each helmet is different; therefore, we cannot give precise advice on which opening to use. You may need to try various positions and find out which one suits best.
Tip: Many ventilation openings are sloping to the front. Thus, you should attach the helmet mount as close to the front rim as possible. Only then the helmet mount will not slip down. Direct the light into a straight forward position and tighten the velcro to avoid slipping of the lighthead during use. A potential bending of the baseplate is not a problem as the plastic used is highly flexible.

Note: The adjustability of the lighthead is defined by the silicone rings at both sides of the lighthead. To always ensure flawless functionality, both black screws must be tightened securely.

How to mount the lamp on a helmet can also be watched in a video provided on our website in the support section!

Helmet mounting the battery:

With the provided extension, the battery may be carried in your jersey or backpack. The flexible velcro strap also provides the possibility to mount the battery directly on the helmet.

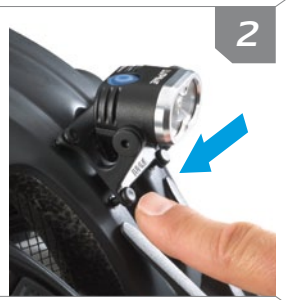
How to mount the battery on a helmet can also be watched in a video provided on our website in the support section!

Piko X Headlight:

The adjustability of the lamp is defined by the silicone rings at both sides of the lighthead. To always ensure flawless functionality, both black screws must be tightened securely. The Piko may be switched from the headband to the helmet mount and vice versa. All required accessories are also available separately. With the provided extension, the battery may be carried in your backpack, a pocket etc.

Piko U3 for uvex helmets:

For further information about available uvex helmet models visit www.uvex.de



For mounting the lamp, simply push the 4 pins into the sockets on the helmet until the base plate rests securely on the helmet. Slide the battery onto the bracket on the helmet from behind. Connect lamp and battery. That's it. Alternatively, the battery may also be carried in your jersey or backpack with the provided extension.

Handlebar mounting:

For mounting the Piko on a handlebar, an optional CNC-mount is available. Have a look at www.lupine.de

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For mounting, please first loosen the screws on the helmet mount/headband. Only one screw but both o-rings are required for mounting the Piko on a handlebar. Put the screw through the hole of the handlebar mount, then put the second o-ring onto the tip of the screw. The order of o-ring, screw, o-ring, handlebar mount, lamp must be strictly adhered to as shown in the picture in order to ensure flawless functionality. After that, tighten the screw slightly first, then securely. Cover the open thread with the included plug.

Put the clamp around the handle bar and close. Then tighten the screw hand-tight with 4 Nm.

Frame mounting the battery:

With the flexible velcro strap, the battery may also be mounted on the frame.

Note: Basically, you may use the Piko lamp with all Lupine batteries irrespective of the type (NiMH or Li-Ion). Usually, the battery life of old batteries is still acceptable, extraordinary dimming abilities provide good light even in case of a very weak battery.

Initialization & voltage display:

After connecting the lamp to the battery, the software runs a selftest; the lamp itself as well as the red and blue LEDs in the switch light up once

The battery voltage is then indicated by the blue and red LEDs, as follows:

➔ The blue LED flashes once for each volt; and then
➔ the red LED flashes once for each 1/10 of a volt.

To display the battery voltage again, unplug the light from the battery and then plug it in again.

Example: The blue LED flashes seven times and the red LED then flashes five times; this means that the measured voltage under load is 7.5 V. This display helps you assess the actual state of the battery prior to use.

Interpreting the voltage display:
More than 7.9 V: the battery is fully charged. 7.1 to 7.8 V: the battery needs charging or is old. 6.5 to 7 V: the battery is not ready for use.

Note: To deactivate this display, simply press the button. In other words, you needn't let the display go through its whole cycle in order to use the lamp.

The control electronics measures the voltage under load.
Thus, measurements using a voltmeter will not be comparable.

Battery voltage
(once per Volt)

Battery voltage
(once per 1/10 Volt)

Switching on:

The first press of the button switches on the light with maximum power. The blue LED is illuminated.

Switching:

Each quick push of the button switches from high to middle to low beam.

Note: The light outputs the maximum amount of light only if airflow lowers the temperature of the light sufficiently. If the light is not cooled by airflow, its power is reduced incrementally to prevent the LEDs and electronic elements from overheating.

Switching off:

To switch off the lamp, keep the button pressed for more than two seconds.

Note: The Piko control electronics not only controls high and low beam; it also protects the rechargeable battery against deep discharge and includes a low battery indicator.

Lamp on

Battery warning indicator:

The red LED indicates the state of the battery. If the battery voltage decreases below a certain value, first the red LED is illuminated (the lamp itself also flashes once) and additionally, shortly before the capacity is entirely exhausted, it starts flashing.

> ***Warning!*** When the battery is completely discharged (the red LED has been flashing for a few minutes), the light will be switched off after flashing several times. Stop immediately!

Note: The burn time remaining after the red LED is illuminated depends on the total battery capacity, the ambient temperature and the battery's age. Moreover, since the voltage curve of a Li-Ion battery is not proportional to the power left in the battery, you need to learn how to interpret the relevant displays for your specific battery. The battery warning indicator may be programmed; see notes on setting the light programs.

Reserve power:

When the battery is discharged (the red LED has been flashing for some minutes), the lamp flashes several times and is then switched off. After switching the light on again (double click!), reserve power is available. Depending on the age of the battery, some more minutes of light are provided. To make reserve power last as long as possible, only light below 2 W is provided. To indicate that reserve power is activated, the red and blue LEDs flash in turn.
When reserve power is completely discharged, the light will be switched off automatically. So slow down!

Low capacity remaining

Stop immediately!

Reserve power

Note: If the lamp is only used with 0.5 W and 1 W, reserve power is not available.

> ***Warning:*** Do not switch on the light when the battery is discharged, as this will invariably damage the battery. Recharge the battery as soon as possible to avoid a deep discharged battery.

Explanation of LEDs:

	Blue LED on:	lamp on
	Red LED on:	low battery, save power!
	Red LED flashing: lights flashing:	battery almost empty, stop immediately!
	Blue and red LED flash in turn:	reserve power activated

The „Power Control System“ provides the possibility for individual programming.
By default, the Piko is set so that usually no changes are necessary.

Light levels:

You may easily select the Piko's light levels. Usually, the Piko operates in 3-level mode. Two more light programs are available. They are very easy to select by simply keeping the button pressed until the light flashes once, twice, etc. When taking your finger off the button accordingly, the setting will be saved. (see programming scheme on p. 14)

- ➔ 2-level mode
- ➔ 3-level mode
- ➔ 2-level mode + superflash

Approximate power consumption of the light:

6 %	dimming level	0.5 W	50 lumen
12 %	dimming level	1 W	90 lumen
32 %	dimming level	2.5 W	230 lumen
100 %		8 W	550 lumen

Default setting

Battery warning indicator:

The battery warning indicator may also be altered. By default, the battery high program is selected. The control electronics monitors the capacity of the rechargeable battery by measuring the voltage. As battery voltage and capacity are not proportional, no generally applicable information can be provided as regards the remaining battery life from the point when the red LED is illuminated.

The knowledge of whether „red" means that only for example 50 % or 25 % of the capacity remain can only be gained from the experience of using the light. This also applies to how much time is left when the red LED starts flashing. The default settings are suited best for each battery for a long time.

Note: To determine the ideal indicator program for your application with another battery or under extreme conditions, experimenting is indispensable. Should the indicator of the battery high program not work to your satisfaction, switch to low and test the behavior of the control electronics for some battery life cycles.

Battery **„High“**
This is the default for Li-Ion rechargeable batteries. The red LED will light up very early. Also reserve power will be activated earlier. If used with a NiMH battery, an extension cord or in very cold temperatures, it might be advisable to change the program.

Battery **„Low“**
This program is particularly suitable for older rechargeable batteries. The red LED and also reserve power are activated with very little capacity left. This benefits old batteries with sufficient capacity but with weaker voltage.

Note: If the battery low program has been selected, the lamp will flash twice when connecting it to the battery. This ensures that the setting can always be determined.

Note: The numbers provided below assume that the lamp is switched on. When starting with the lamp switched off, the lamp will flash once after approx. 2 seconds - lamp on/off.

Light levels

2-level

PRESS

Hold button down for 5 seconds until

1. lamp flash

then release

3-level

PRESS

Hold button down for 10 seconds until

2. lamp flash

then release

2-level + Superflash

PRESS

Hold button down for 15 seconds until

3. lamp flash

then release

Battery warning indicator

Battery „High"

PRESS

Hold button down for 20 seconds until

4. lamp flash

then release

Battery „Low"

PRESS

Hold button down for 25 seconds until

5. lamp flash

then release

6 %	diming level	0.5 W	50 lumen
12 %	diming level	1 W	90 lumen
32 %	diming level	2.5 W	230 lumen
100 %		8 W	550 lumen

Default setting

Components:

Wiesel charger and three plug adapters (for continental Europe, UK, and the USA).

Connecting:

Plug the included Wiesel charger into an outlet and connect it to the battery.

Charging:

Charging starts automatically, the green LED is illuminated.
When the battery is fully charged and the charger switches to Full, the green LED goes off. The battery can be left plugged into the charger for an indefinite period. Although this will not damage the battery, it is not advisable for Li-Ion batteries since they do not require conservation charging. When kept in a cool place, the annual self-discharging rate for such batteries is 15 %.

Note: The green LED is only illuminated during the charging process and will not come on if a fully charged battery is plugged into the device.

LED display:

Green LED on: battery being charged
Green LED off: battery is fully charged

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- ***Warning!*** This charger is to be used to charge rechargeable Li-Ion batteries only. It is NOT suitable for charging NiMH batteries!
- ***Do NOT use non-rechargeable batteries. – Risk of explosion!***
- This charger may be opened ONLY by the manufacturer!

Lamp:

After use in salty air, clean the lamp and the cables externally with warm water and some mild detergent.

Plug contacts:

Normally the plug contacts are maintenance free. However, if you use your Piko light in salty environments, it is advisable to apply a thin layer of Lupine Dutch Grease to the contacts every so often to prevent oxidation. Do NOT use terminal grease or contact spray.

Transport:

Important! Always disconnect the battery from the light!
Otherwise the small amount of power used by the electronics will discharge the battery, and the lamp may be switched on accidentally. The consequent uncontrolled heat buildup could cause a fire or melt adjacent plastic material.

Storage:

If you intend not to use the lamp for a longer period of time, fully charge the battery and leave it connected to the charger. For storing, we recommend a cool and dry place.

Opening the Screw Top:

Important! Because of the delicate sealings, we do not recommend to open the lamp.
A leakage in consequence of opening the light is excluded from warranty!

Problem	Cause	Solution
The light does not come on and the power LEDs do not flash when the battery is plugged into the lamp.	➔ Extremely discharged battery.	➔ Charge the battery.
	➔ Battery not plugged into the light or not plugged in properly.	➔ Check all plug contacts.
With the battery plugged in, the power LEDs do not come on, but the PCS LEDs flash.	➔ Faulty LED unit.	➔ Replace the LED unit.
The Power LEDs do not stay on for as long as they should.	➔ Discharged battery. ➔ Old battery. ➔ Very low ambient temperature. ➔ Faulty charger. ➔ Unsuitable battery.	➔ Charge battery. ➔ Replace battery. ➔ Keep battery warm. ➔ Replace charger. ➔ Use original Lupine battery.

Weight:

Piko lamp:	55 g
Piko 3 with battery:	180 g
Piko X with battery:	210 g
Piko U3 with battery:	180 g

Light output:			Battery life:
8 W	100 %:	550 lumen	2 hours 30 min.
2.5 W	32 %:	230 lumen	7 hours
1 W	12 %:	90 lumen	19 hours
0.5 W	6 %:	50 lumen	50 hours

Battery life varies according to battery age and condition, as well as ambient temperature.

Default setting

Charging time:
3 hours

Battery capacity / nominal voltage:
2.5 Ah / 7.2 V Li-Ion

Lens beam angle:
15 °

Operating temperature:
25 °C – +70 °C

Charger Wiesel:

Input voltage:	100 – 240 V~, 50 – 60 Hz
Charging current:	up to 1.2 A
Compatible batteries:	Li-Ion 7.2 V
Display:	charging control via one LED
Plug adapters:	D/Euro, UK, USA

The laws governing the allowable application domain for this lighting system may vary from one country to another. We recommend that you inform yourself about the relevant laws in this domain in your country.

Warranty:

The product's two year warranty applies to all components, as well as any manufacturing defect. The warranty does not include the battery, however. In addition, any modification or improper use of the product will void the warranty.

Purchase date/Dealer stamp

www.lupine.de

Lupine Lighting Systems GmbH
Winnberger Weg 11
92318 Neumarkt
Germany

Phone: +49 (0)91 81 - 50 94 90
Fax: +49 (0)91 81 - 50 94 915
E-mail: info@lupine.de